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FOREST RESEARCH NEWS

October 1970

FOR THE MIDSOUTH

SOUTHERN FOREST EXPERIMENT STATION, FOREST SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Tuskegee Institute Trains Future Foresters

The heavy wood doors are the same. The steep, well-worn stairways are the same. Milbank Hall, the tall stark brick laboratory building atop a hill at Tuskegee Institute in Alabama is the one where at the turn of the century George Washington Carver made discoveries in agricultural research benefiting his people and the Nation.

Today, some of the country's first black pre-forestry students are at work there. Their purpose is to help solve the environmental crisis of the '70's.

A visitor to the laboratories

senses a firmness of purpose that must have prevailed when the famous Negro agricultural experimenter conducted his research with peanuts and sweet potatoes. The feeling of discovery is still there.

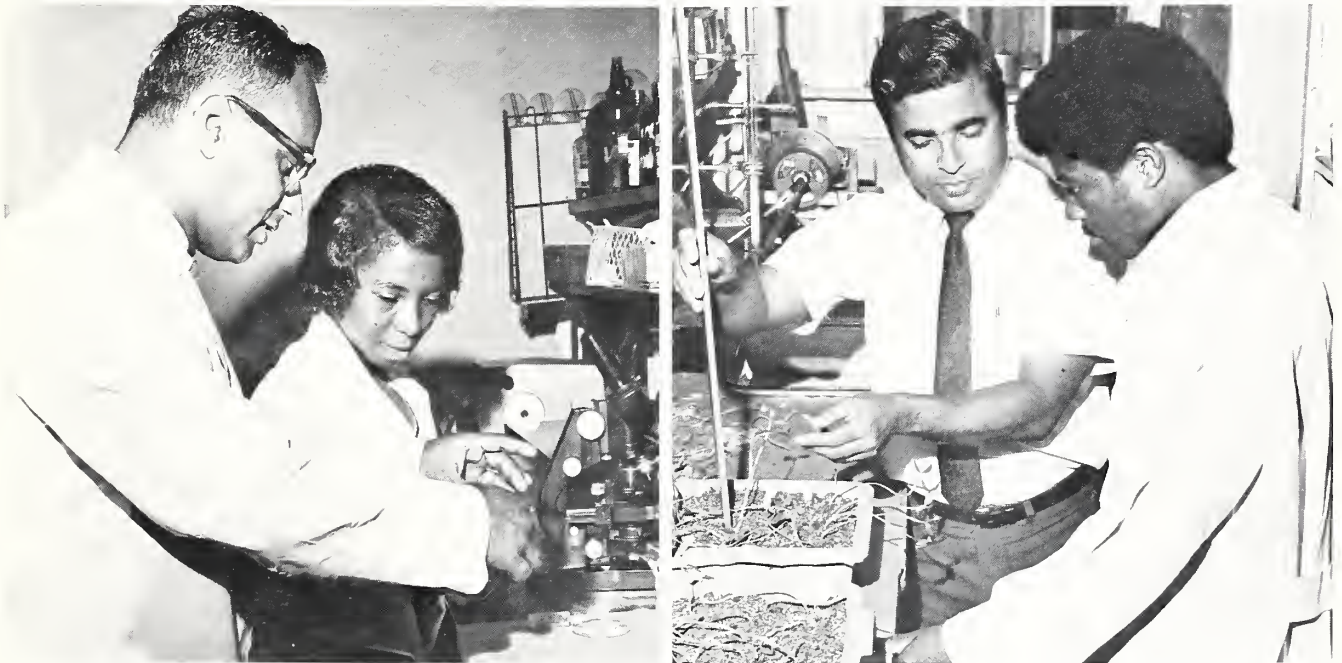
Discovering Forest Science

Part of the students' discovery is finding the world of science that the forester explores in his work. Heretofore they have been picturing foresters as concerned only with putting out fires, cutting pulpwood, and planting trees. Now they are finding excitement in learning that "ecology" has been a prime word in

the forest researcher's vocabulary for 50 years; that pure water, fresh air—all the forces of environment that make healthy daily living—are his concern.

For the research associates and instructors who have come to Tuskegee to teach courses leading to upper class work in forest sciences, the discoveries are equally challenging. "An adventure in living," one of them calls it.

Recognizing both a need and an opportunity, the Southern Forest Experiment Station worked out a cooperative agreement with Tuskegee Institute in



Tuskegee Institute students and research associates are engaged in a forestry project in the same building where George Washington Carver did his work with peanuts and sweet potatoes at the turn of the century.



Two new freshmen students get a preview of forest tree leaves they will see on their first field trip on Tuskegee Institute forest land. Charles F. Tiernan, left, Southern Forest Experiment Station scientist, will teach the natural resources course of Tuskegee. Dr. Brian R. Payne, Forest Service scientist who organized the course and taught it for 2 years, has recently been transferred to the Northeast for research.

1968—the first forestry program to be established in a predominantly black college. The objective was to create a program of research and instruction that would foster interest among black students in forestry studies. Dr. B. D. Mayberry, vice-president of Tuskegee, in 1967 had requested assistance of the USDA Forest Service, along with that of the University of California at Berkeley and the University of Michigan, in working out a forestry program.

Black Foresters Needed

Need for the program was obvious. Of about 1,600 foresters in the United States, not more than five are black. Yet approximately one-third of the land area in the U. S. is occupied by forests. Especially in the South, forestry as a profession is growing rapidly, promising job opportunities and personal job satisfaction to trained men and women.

Dr. Brian R. Payne began work for the Southern Station at the Institute in November 1968. He was assisted by the University of Michigan faculty in preparing and offering the initial course, "Natural Resources Ecology." Payne contacted faculty and students concerning the new program. When classes began in January 1969, 26 students enrolled. During the semester four students elected pre-forestry as their major field of study.

Tree Seed Research Started

At about the same time—in February 1969—research on factors influencing dormancy in forest tree seeds was begun with a grant of \$50,000 from the Forest Service. Dr. P. K. Biswas is in charge of this study, and several graduate students are working with him. A visit to Dr. Biswas' laboratory finds young scientists intent on such ques-

tions as the causes of dormancy in tree seeds.

Research to investigate relationships between the nutrient status of soil and juvenile growth of longleaf pine was begun cooperatively by the Institute and the Southern Station in May 1969. Dr. Wesley Nelson is principal investigator.

While the old buildings, old rooms, old laboratory benches have a patina that only time can give, they are spotlessly maintained. And advanced scientific equipment has been added where needed for sophisticated research techniques. Young black students in lab coats do flame photometry to determine the calcium, magnesium, and other elements in plants. A gas chromatograph assists in several biochemical studies. These future foresters seem proud to show visitors the advanced instruments at their university. And they seem just as proud that they are "making do" in some cases with limited facilities, such as the discarded refrigerators converted to growth chambers.

New Course Added

A second course, "Introduction to Forestry," was added to the pre-forestry curriculum in September 1969, and eight students completed the course. In January 1970 "Natural Re-

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sources Ecology" was taught for a second time, with an enrollment of 18. By the end of that semester eight students had elected pre-forestry as a major. Several students had worked during the summer on National forests, earning money to return to school and gaining experience in their chosen field.

During the summer of 1970 the first two students to complete the pre-forestry program were accepted as upper-division students—one at the University of California and the other at the University of Michigan. Both are receiving substantial scholarship help from the universities.

Iowa State University, George Washington Carver's alma mater, is one of the schools standing by to accept and provide scholarships for upperclassmen completing their pre-forestry training at Tuskegee. Other schools expressing interest in students from the Institute include Virginia Polytechnic, the State University of New York College of Forestry at Syracuse, North Carolina State University, and Stephen F. Austin University at Nacogdoches, Texas.

Charles F. Tiernan was transferred from the Pacific Southwest Experiment Station of the Forest Service in Berkeley, California, in August to succeed Payne, who was transferred to a new research position at the Northeastern Forest Experiment Station. This fall Tiernan began teaching the introductory forestry course to nine students.

Contributing to the undergraduate program at Tuskegee are several professors from the University of Michigan who visit the campus in rotation to offer a course in natural re-



Dr. Irene J. Nelson, Southern Station research project leader at Tuskegee Institute, is studying locations of forest recreation facilities and determining their use by racial groups.



Tuskegee Institute pre-forestry student talks with Forest Service scientist about langleaf pine seedlings seen here in the grass stage an Institute land. Researchers hope to shorten the period the seedling remains in the grass stage.



Future foresters wade into Uphapee Creek near Tuskegee Institute in Alabama. They are experiencing "the real thing" in their class in "Natural Resources in Modern Society," an introductory course for upper class forestry studies at leading universities throughout the country.

sources ecology and environmental conservation. These visitors also give seminars for graduate students and faculty on current research in their areas of specialization.

Opportunities in Forest Use

Because enjoyment of forest environment and benefits of forest-land income for blacks is substantially below that of their white counterparts, the Southern Station early in 1970 created a research project aimed at deriving information needed to remedy this situation. Dr. Irene J. Nelson heads that research to find ways of enhancing recreational and economic forest opportunities for black residents of the rural South.

Added to Tuskegee's academic capability to provide pre-forestry training and facilities for graduate study is the fact that the Institute owns 3,000 acres of forest land within a few miles of the campus. Here are opportunities for outdoor laboratories in teaching, research, and demonstration.

Because of its traditional position of leadership and because its forest land is typical of much land in the South, the Institute can provide an example of proper forest management to other landowners. By practicing good forestry on its own land, in addition to having a training ground, Tuskegee can have a significant positive effect on the practice of forestry throughout the South.

An inventory was made of Tuskegee land, and timber from an emergency cut of diseased and damaged trees was sold. This work was done by the Southeastern Area of the State and Private Forestry arm of the Forest Service, assisted by the Alabama Forestry Commission, Payne, and the Institute. They subsequently developed a 5-year management plan for the land.

The plan includes a loblolly pine plantation, forest demonstration areas, developing a forestry camp, a natural area and nature trail, and construction of a recreation-organizational complex.

The availability of forest land, the beginning of forestry research at a historic university, and the enthusiasm of students and staff have been vital first steps toward developing a strong forestry program at Tuskegee Institute. The need is great for highly trained foresters to meet the challenge of the '70's with its crises of endangered natural resources.

Milbank Hall, Tuskegee Institute



Amanitas Anyone?—Okay If You're A Squirrel

Wild animals have at least one advantage over humans—they can eat mushrooms deadly to us and get away with it.

It's a good thing, too. Animals such as deer, squirrels, and turkeys apparently depend substantially on fleshy fungi for subsistence, especially during winter, when other natural foods are scarce.

This information is reported in an illustrated booklet, "Fleshy Fungi Commonly Eaten by Southern Wildlife," published by the Southern Forest Experiment Station. Authored by Howard A. Miller and Lowell K. Halls, the guide was written to aid wildlife managers in identification of mushrooms as wildlife food in the southeastern forests extending from Texas to Virginia.

Fifty-eight species of fleshy fungi are described. All are known to be eaten by one or more species of wildlife, and all have fruiting bodies large enough (at least 2 inches in diameter) to provide a substantial meal for large birds and mammals such as turkeys and deer.

Wild animals find mushrooms just about everywhere in southeastern forests, the two authors report. Since fungi obtain food from organic matter, they are particularly abundant where the forest floor is covered with dead leaves, thick moss, or other debris. A long rainy spell is frequently necessary before mushrooms appear.

Fresh, fleshy fungi are highly nutritious and easily digestible. Their crude protein content usu-

ally ranges from 12 to 30 percent (dry weight basis), depending on the species. Phosphorus content often ranges from 0.20 to 0.68 percent.

Does forest management favor the growth of mushrooms? Yes, the authors report, if the management disturbs the soil or causes natural debris and organic material to accumulate. Some mushrooms live on slash and downed trees, hence should increase in numbers for several years following logging. Later, as the debris breaks down, it sustains other species of fungi. Certain mushrooms that are scarce or absent in stands of upland hardwoods become abundant when the forests are converted to pine.

Opinions vary about whether controlled burning is beneficial to mushrooms. It has been reported that this technique often causes certain fungi to fruit for a few years, after which they are not seen until the next burn. On the other hand, some observers say that burning reduces litter, hence probably decreases the number and kinds of fungi.

The booklet, Research Paper SO-49, is available from the Southern Forest Experiment Station, USDA Forest Service, 701 Loyola Avenue, New Orleans, Louisiana 70113.

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Irrigation significantly increases both height and diameter growth of cottonwood trees.



White-Tailed Deer Information Published



For many sportsmen, hunting deer is a favorite outdoor recreation.

A booklet believed to be the most complete compendium available on white-tailed deer has been published by the Southern Forest Experiment Station.

Titled "White-Tailed Deer in the Southern Forest Habitat," it contains proceedings of a symposium

held at Nacogdoches, Texas, in March 1969. Included are discussions of the background, characteristics, and management of deer and their habitat.

Nearly exterminated in the South for a time, deer populations have increased in the past several decades with improvements in game management and land management practices. Today deer are more numerous than at any time since white men settled the country.

Deer are highly valued by the public. They are hunted by sportsmen, admired by nature enthusiasts, and desired by some landowners as a possible source of additional revenue. But they are disliked by some farmers whose crops they damage and whose livestock must compete with them for food. Also, deer are possible transmitters of disease, and they create difficulties in resource allocation and management which are becoming more complicated as human population increases and competition for land use intensifies.

The potential values of deer outweigh the undesirable characteristics, Lowell K. Halls, Southern Station wildlife habitat project leader in Nacogdoches, believes. But he points out that enlightened management is necessary if these values are to be fully realized.

Halls organized the symposium to consolidate known information and to offer a means of expressing new ideas pertinent to management of white-tailed deer in southern forests. Cooperating in the symposium were the Forest Game Committee of the Southeastern Section of the Wildlife Society and the Stephen F. Austin University School of Forestry.

Persons from Federal agencies, State conservation departments, universities, and private industry contributed knowledge and viewpoints. Of special importance were papers concerning the outlook for deer as influenced by sociological, economic, and political factors.

Proceedings of the symposium are available from the Southern Forest Experiment Station, 701 Loyola Avenue, New Orleans, Louisiana 70113.



Protective coloring and meager body scent protect this fawn from predators.

FRAMEWORK FOR THE FUTURE

A concise statement of Forest Service objectives and policy guides is found in a recently distributed booklet called "Framework for the Future."

Issued by the Secretary of Agriculture Clifford M. Hardin and the Chief of the Forest Service Edward P. Cliff, the statement recognizes that the way in which the nation's resources are managed is an important clue to the kind of environment people can expect and the economic opportunities that will exist in both rural and urban areas.

"Our success in reaching these objectives will be measured by our sensitivity to the problems and needs of a changing society, and by our flexibility in meeting those needs," Chief Cliff said.

Forestry means not only forests, but also rangeland, grass-

lands, water, minerals, and wildlife. Forestry activities are concerned with scenery, air, open space, economic strength, and social well-being, the booklet points out. All of these values, both tangible and intangible, are taken into account by Forest Service objectives and policy as stated in "Framework for the Future."

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Every acre of growing trees generates enough oxygen to sustain 18 people for an entire year.

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The Cherokee National Forest in Tennessee reported the largest number of visitors for Memorial Day weekend of any National Forest in the South. The record was 55,000.

Working With Wood Waste

Mounting piles of urban solid wastes can be reclaimed for useful paper. The Forest Products Laboratory, a USDA Forest Service research facility in Madison, Wisconsin, is showing how it can be done.

Thirty percent of the contents of a sample paper from the laboratory is wood fiber reclaimed from the city dump. Large-scale recycling of used wood fibers can reduce the nation's air and water pollution as well as the growing mountains of urban wastes, the researchers point out.

Other Forest Service environmental research includes the use of trees and shrubs to cushion the noises of traffic, airports, and industry; effects of air pollution on tree survival; preserving forests to provide man with solitude and natural beauty.

DIRECT-SEEDING LONGLEAF PINE

A complete guide to direct-seeding longleaf pine has been written by W. F. Mann, Jr., Southern Forest Experiment Station scientist at the Alexandria Forestry Center in Pineville, Louisiana.

Each major aspect of the operation, from initial planning to final appraisal of results, is covered in a separate section, with enough details to guide a forester with no previous experience in direct-seeding longleaf. The publication updates "Guidelines for Direct-Seeding Longleaf Pine," issued in 1959.

Sowing pines directly on the site where the trees are to grow to maturity—as distinguished from sowing seed in a nursery and then planting 1-year-old trees—has appealed to foresters for many years. Early attempts usually failed, however, because birds, insects, and rodents ate the seeds before they could germinate. Mann tested a successful bird repellent in 1954, and by 1957 had a combination re-

pellent effective against insects and rodents as well.

Longleaf was the first of the southern pines to be sown operationally, beginning about 1955. Seeding is the most prevalent method of regenerating this species because planting nursery-grown seedlings is expensive and the survival rate is often low.

More than 200,000 acres have been sown on a wide array of sites across the South. These operations, many of them observed by Mann, served as proving grounds for developments covered in the new publication. Recommendations for additional reading are listed at the end of the text.

The new publication, "Direct-Seeding Longleaf Pine," USDA Forest Service Research Paper SO-57, is available from the Southern Forest Experiment Station, 701 Loyola Avenue, New Orleans, Louisiana 70113. Similar guides are available for slash and loblolly pine.

Birds were major seed predators before a repellent was developed.



ON TAMING FIRE

How the Forest Service tames damaging wildfire and uses tame fire as a prescription for ills of forest lands is described in a new 24-page booklet called "Fire and the Forest."

Whether dealing with unpredictable, sometimes catastrophic wildfire, or attempting to harness fire energy and apply it by prescription, foresters and land managers must rely on knowledge, skills, and techniques developed through research.

"Fire and the Forest" describes with dramatic photographs and understandable text the research being done by the Southeastern Forest Experiment Station at the Southern Forest Fire Laboratory at Macon, Georgia.

About 2 million acres of forest land are charred and damaged in the South by an average of 75,000 wildfires each year. Most of these fires are started by man.

The USDA Forest Service recognizes an urgent need for public awareness of the importance of forest resources in satisfying human needs and the damage done by fires when they run wild. State and Federal agencies are working together to solve this problem.

Copies of the new booklet may be obtained from the Southern Forest Experiment Station, 701 Loyola Avenue, New Orleans, Louisiana 70113, or from the Southeastern Forest Experiment Station, P.O. Box 2570, Asheville, North Carolina 28802.

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Have you thanked a green plant today?